



WIRELESS SURVIVAL GUIDE FOR THE SEPTIC INSTALLER

Sump 
Alarm

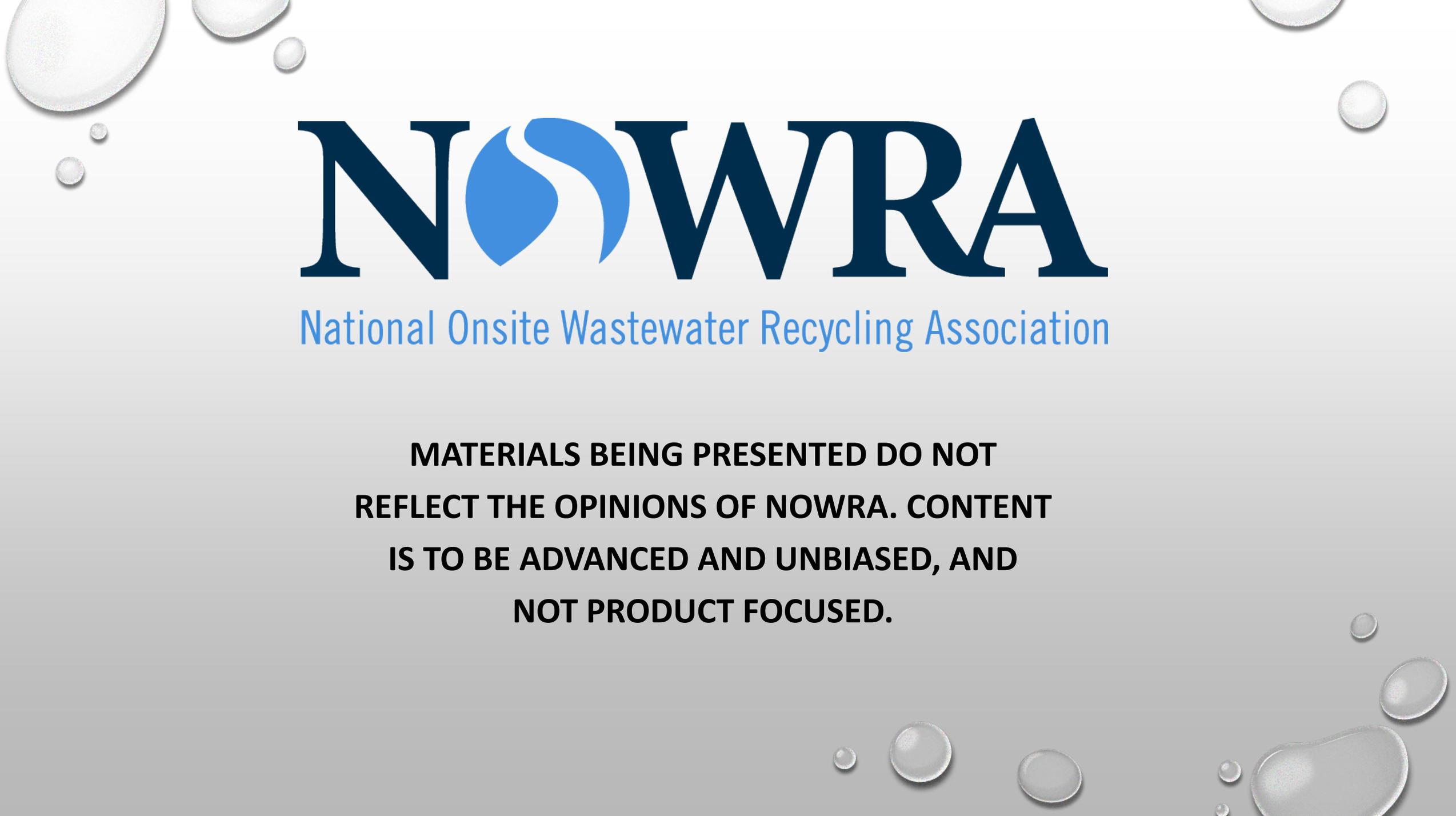
PRESENTER INFORMATION

INDUSTRY EXPERIENCE: 26 YEARS
RELAVENT BUSINESS EXPERIENCE

- **Founded Sump Alarm Inc. in 2011**
- **Designed and Patented the first commercially available Wi-Fi septic alarm in 2016**
- **Extensive career history with electrical controls, pumps and floats, and predictive failure technologies**
- **Our team regularly assists installers with wireless equipment deployments**
- **Electrical Engineer with extensive business experience**



THE STEIGER FAMILY (AND SUMP ALARM) LIVE IN ST. LOUIS MO.



NOWRA

National Onsite Wastewater Recycling Association

**MATERIALS BEING PRESENTED DO NOT
REFLECT THE OPINIONS OF NOWRA. CONTENT
IS TO BE ADVANCED AND UNBIASED, AND
NOT PRODUCT FOCUSED.**

QUESTIONS YOU MAY HAVE

OFTEN, INSTALLERS WOULD LIKE TO KNOW..

- WHY BOTHER WITH WIRELESS TECHNOLOGY?
- CAN AND HOW DO WE MAKE MONEY WITH IT?
- HOW DO WE ADOPT IT WITHOUT DISTRACTING FROM OUR KEY BUSINESS?
- WHAT SPECIFIC TECHNICAL INFORMATION DO WE NEED TO KNOW? WHAT ARE THE LIMITS?
- OTHERS?



DISCUSSION POINTS

- I. INTRODUCTION – WHY BOTHER?
- II. A LITTLE BIT ABOUT THE TECHNOLOGY
- III. WHEN WHERE AND WHY REMOTE MONITORING MAKES SENSE (AND WHEN IT DOESN'T)
- IV. HOW TO SCOPE IT, QUOTE IT, AND MAKE MONEY ON IT
- V. INSTALLATION SUCCESS (AND PITFALLS)
- VI. ADMINISTERING SALES AND EXECUTION
- VII. CONCLUSION





PAPER VS. PRESENTATION



PRESENTATION

- INTRODUCTION TO PAPER
- OPEN DISCUSSION

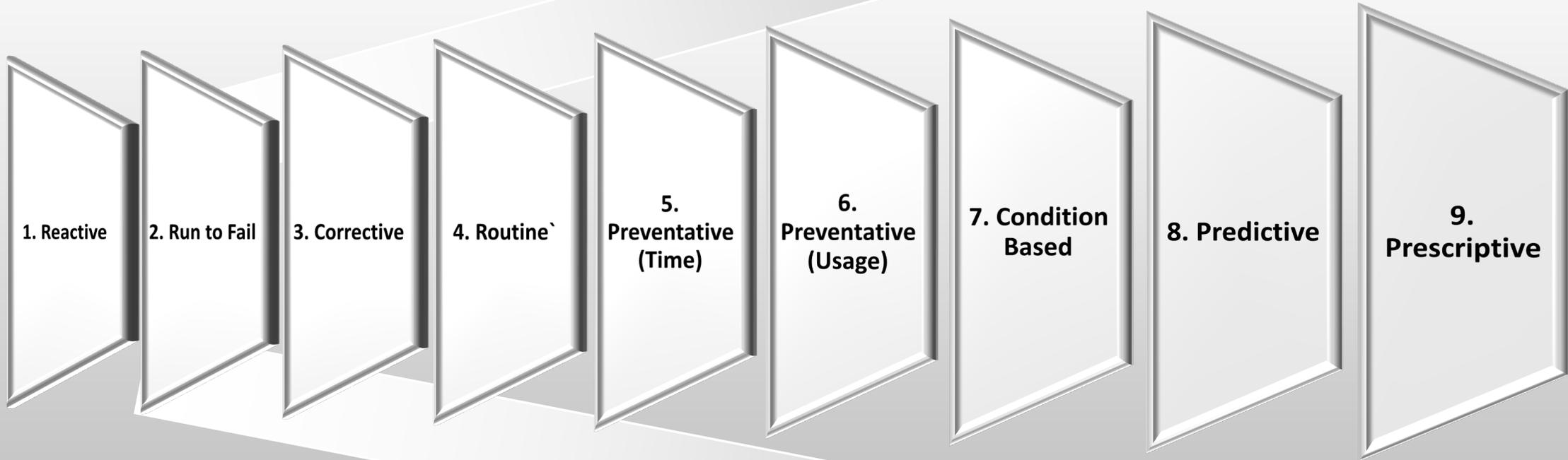
PAPER

- FULL OF RESOURCES
- REFERENCE MATERIAL FOR SCOPE AND ADMINISTRATION

Presentation and Paper will Be Downloadable from the NOWRA Website

<https://www.nowra.org/conference/mega-conference/conference-proceedings/>

9 MAINTENANCE TIERS



Human Involvement

9 MAINTENANCE TIERS

1. Reactive

The septic system has a condition that stops the system from working. The customer has no plan to fix it resulting in an "emergency call"

9 MAINTENANCE TIERS

1. Reactive

2. Run to Fail

The septic system has a condition that stops the system from working. The customer has some plan on what they can do to "get by" until a septic professional can get there.

9 MAINTENANCE TIERS

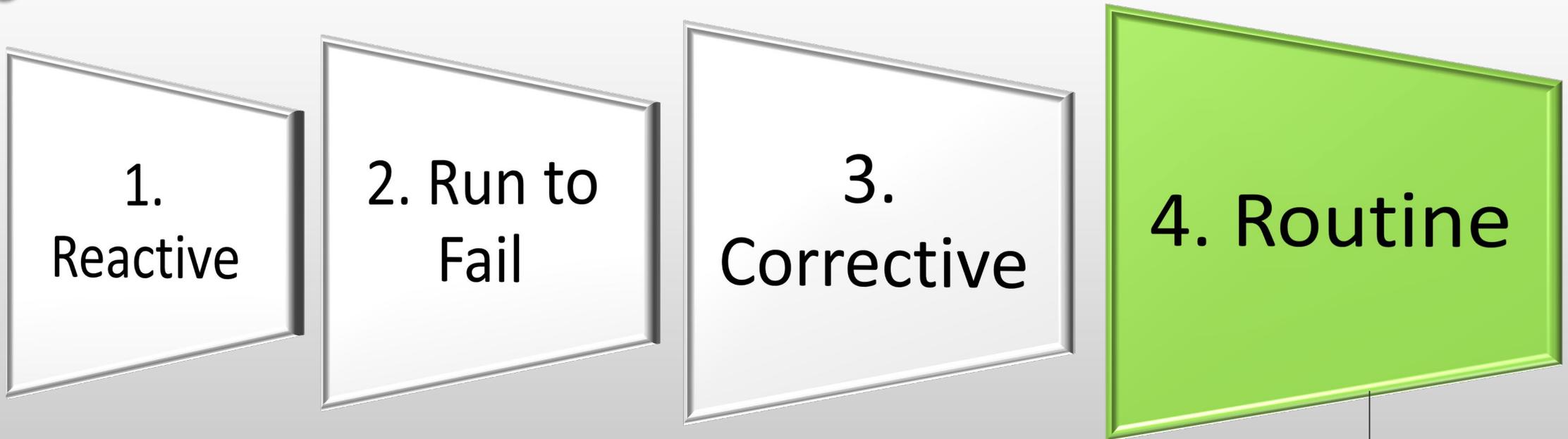
1.
Reactive

2. Run to
Fail

3.
Corrective

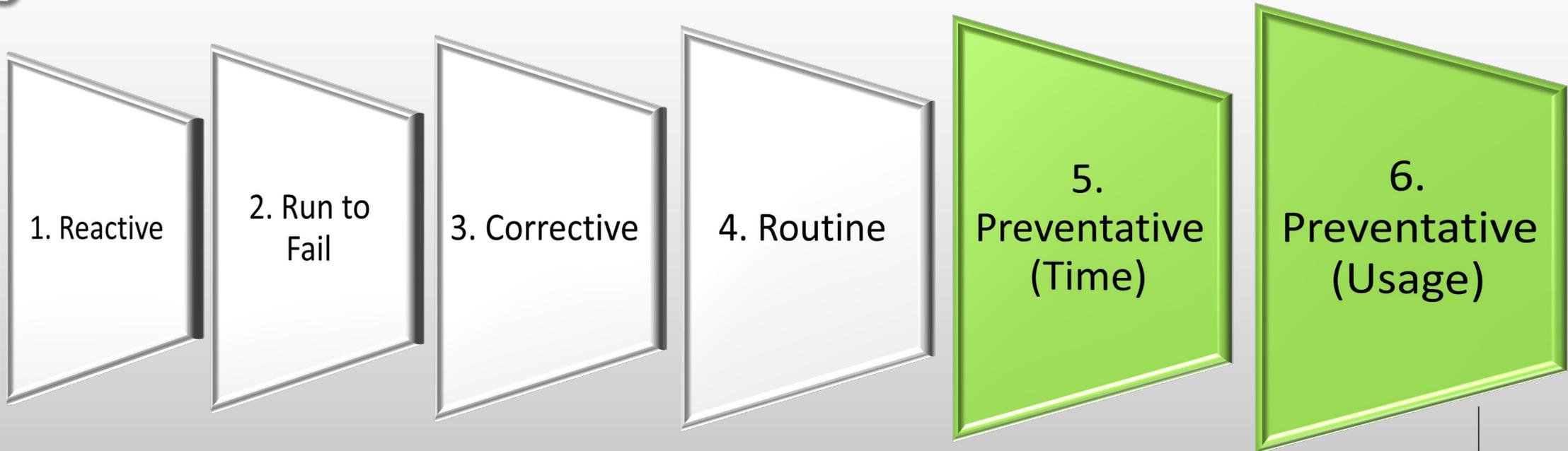
The customer actively monitors their septic and notices that something is not correct and calls immediately before the problem worsens.

9 MAINTENANCE TIERS



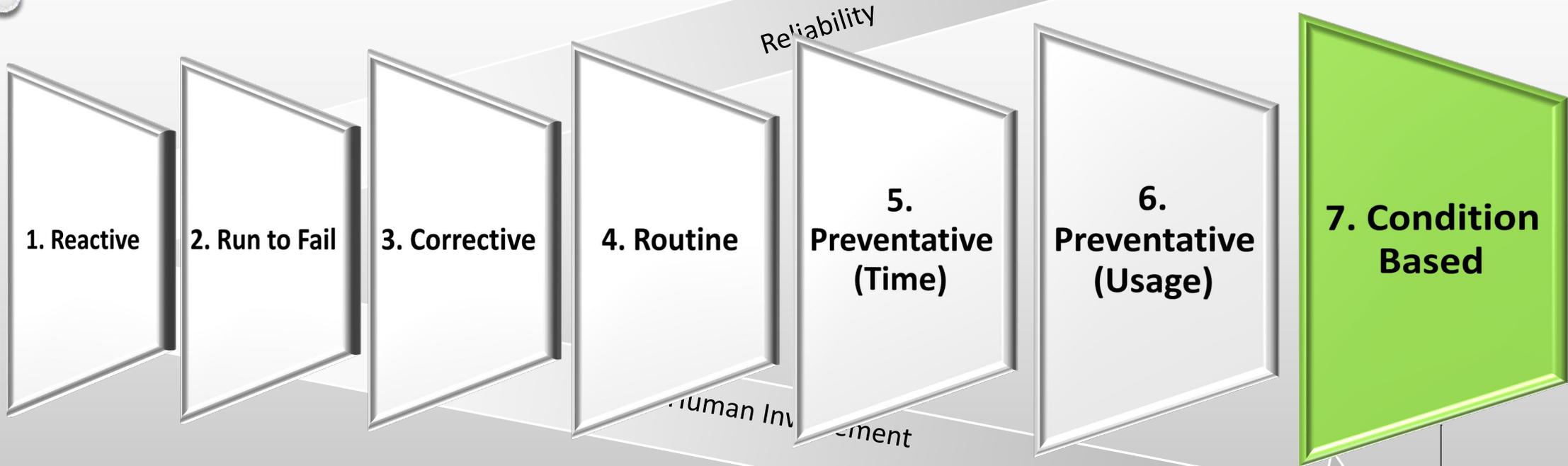
The customer is on a plan to have the system periodically checked (or checks it themselves) and follows the prescribed maintenance.

9 MAINTENANCE TIERS



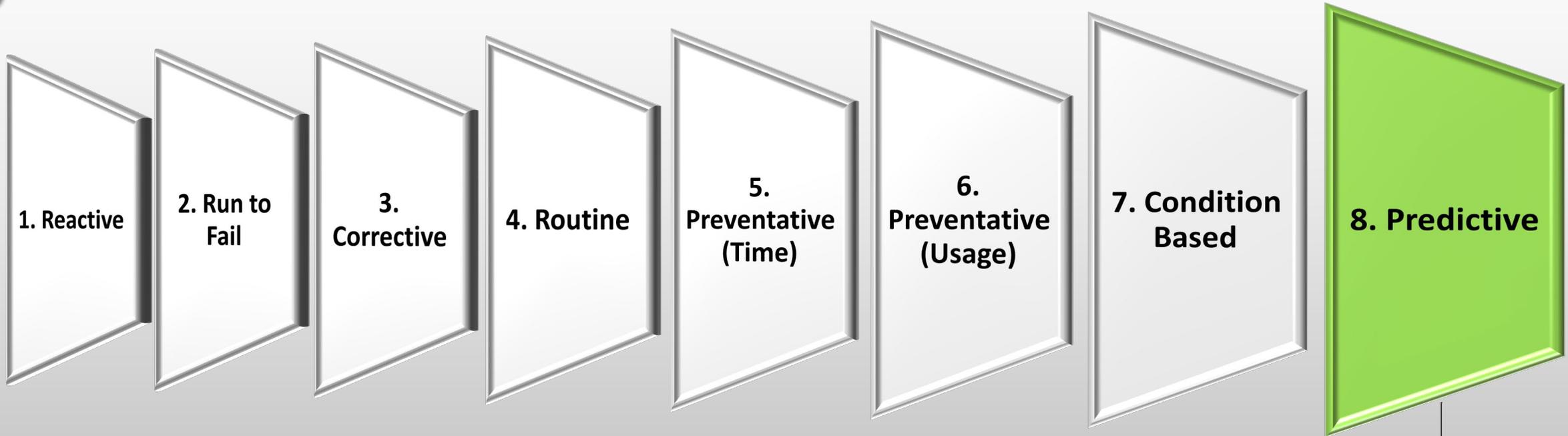
**Rotate tires every 7,000 miles or every 6 months.
In wastewater... customer either monitors their
home usage of water or sets a time period and
uses it for a guide on when to check the tank.**

9 MAINTENANCE TIERS



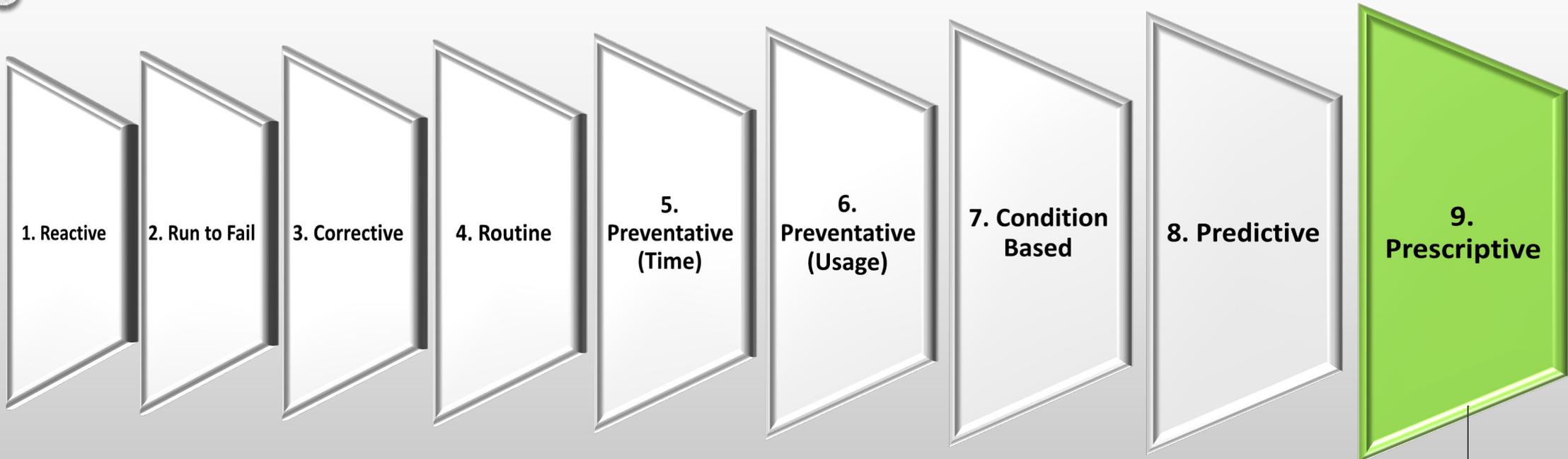
Maintenance is provided when there is monitoring in place that indicates that it is required. It does not specify which component nor how much time is left before a system failure.

9 MAINTENANCE TIERS



Monitoring several variables for the components of a wastewater system individually. Conditions indicate in advance what component will fail, why, the specific part that is required, purchases it, and schedules installations.

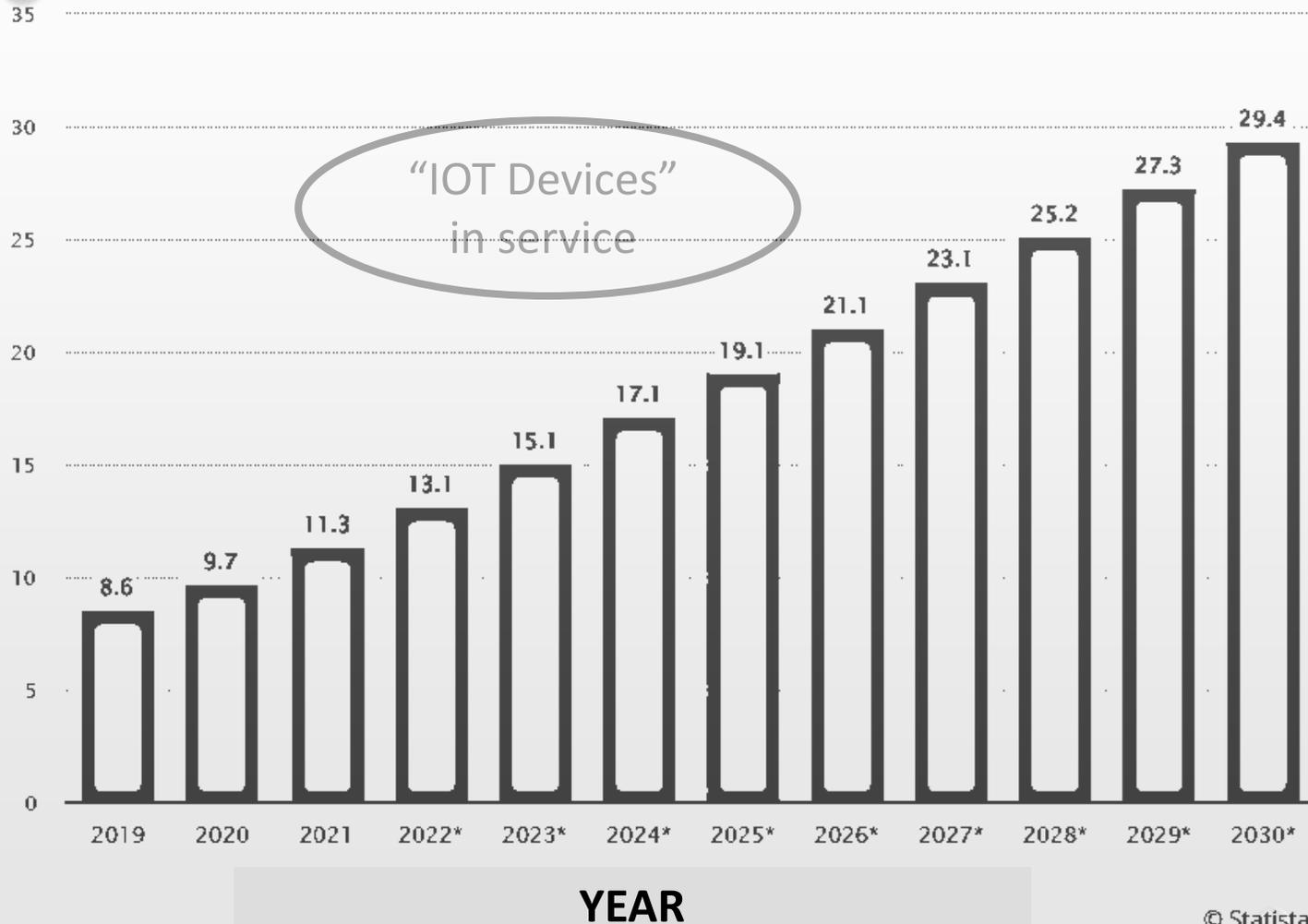
9 MAINTENANCE TIERS



Monitoring each component of the septic tank individually via computer and software, and conditions indicate in *advance* what component will fail, why, the specific part that is required, purchases it, and schedules installations.

WHY BOTHER?

CONNECTED DEVICES IN BILLIONS



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Show source

1. IOT (Internet of things) devices are growing by billions per year.
2. Customers want it, but they don't want to install it.
3. The value is not just to the end user. Installers also benefit.
4. Customers are often comfortable with technology aspects installers want to avoid.
5. Installers are often comfortable with the aspects customers want to avoid.

MAJOR TREND CONVERGENCES ARE HAPPENING

Continuing Maintenance Evolution
Simultaneous Increase in Device Capabilities and Affordability
Increasing Smart Home Technology
Customer Convenience

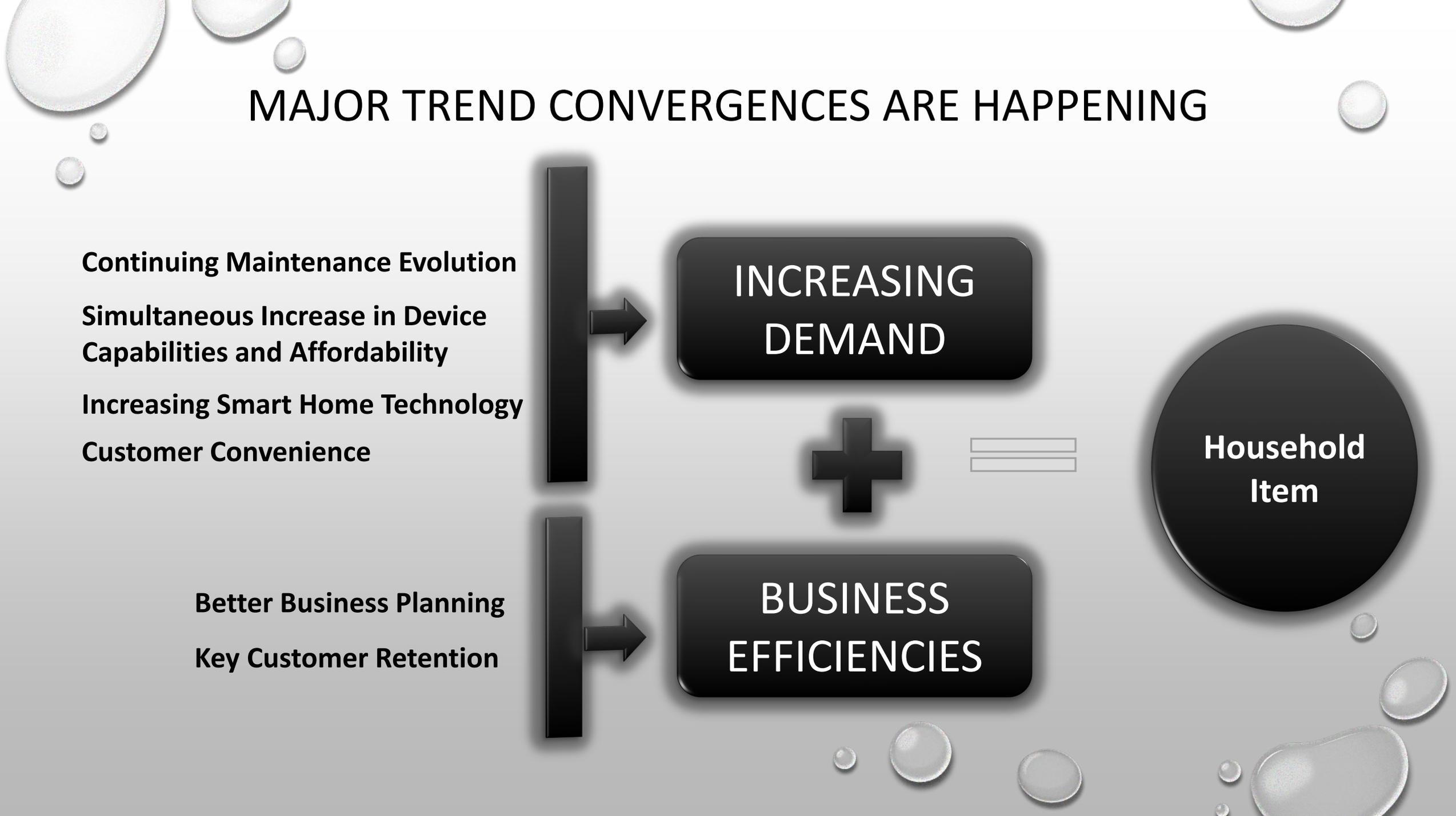
Better Business Planning
Key Customer Retention

INCREASING DEMAND



BUSINESS EFFICIENCIES

Household Item



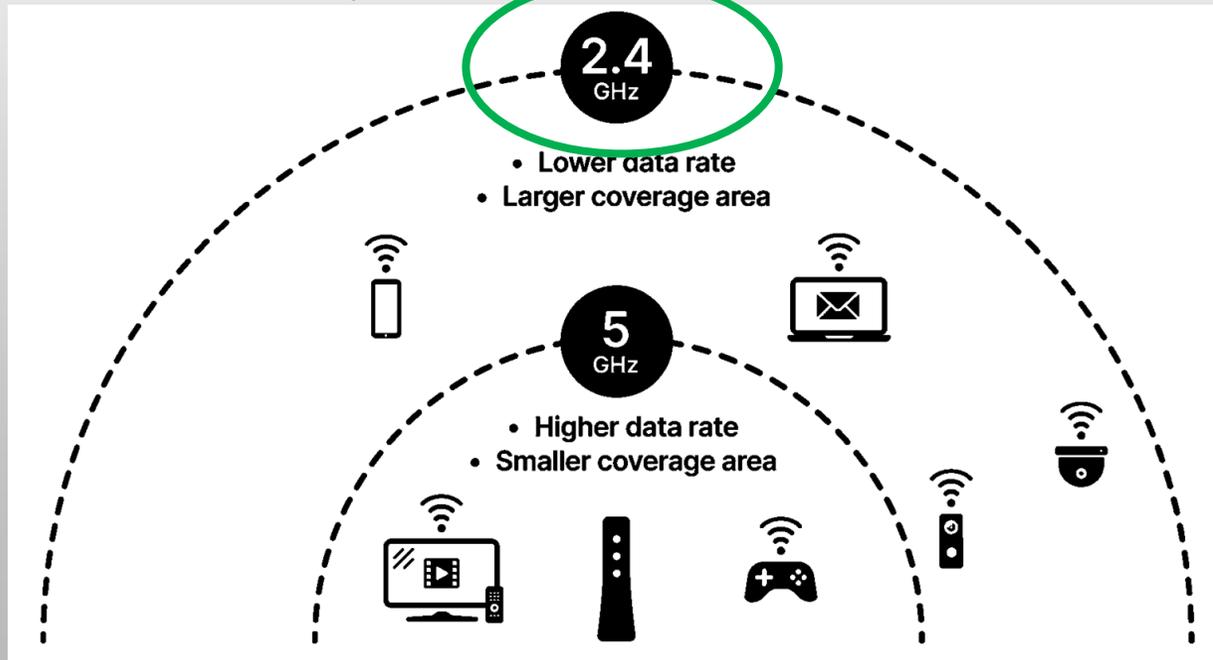
The background features a light gray gradient with several realistic water droplets of various sizes scattered in the corners. The droplets have highlights and shadows, giving them a three-dimensional appearance.

II. TECHNICAL POINTS

THE CONFUSION ABOUT THE "G'S"

WI-FI

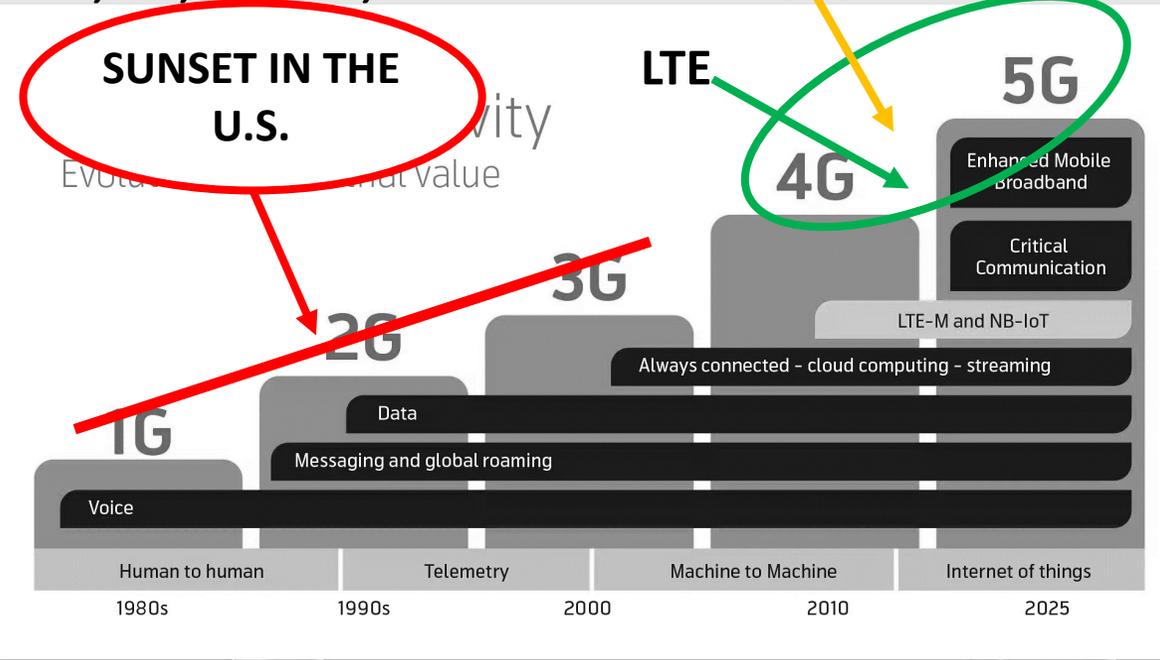
- G stands for Gigahertz (GHz)
- 2.4GHz, 5 GHz



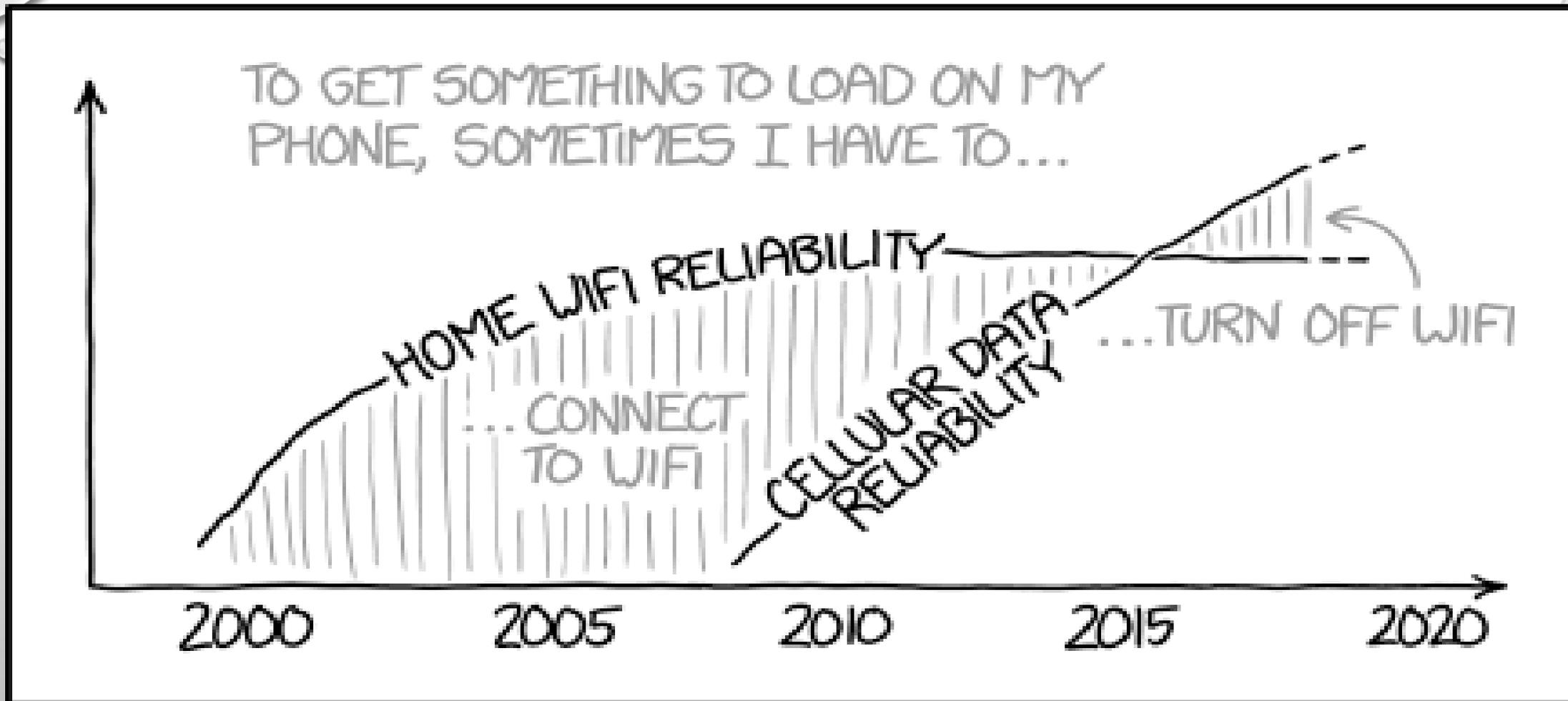
CELLULAR

- G stands for Generation
- 2G, 3G, 4G, LTE, 5G

CAT-1 AND CAT-M1 (A.K.A "CAT-M") ARE PREFERRED



CELLULAR VS. WI-FI



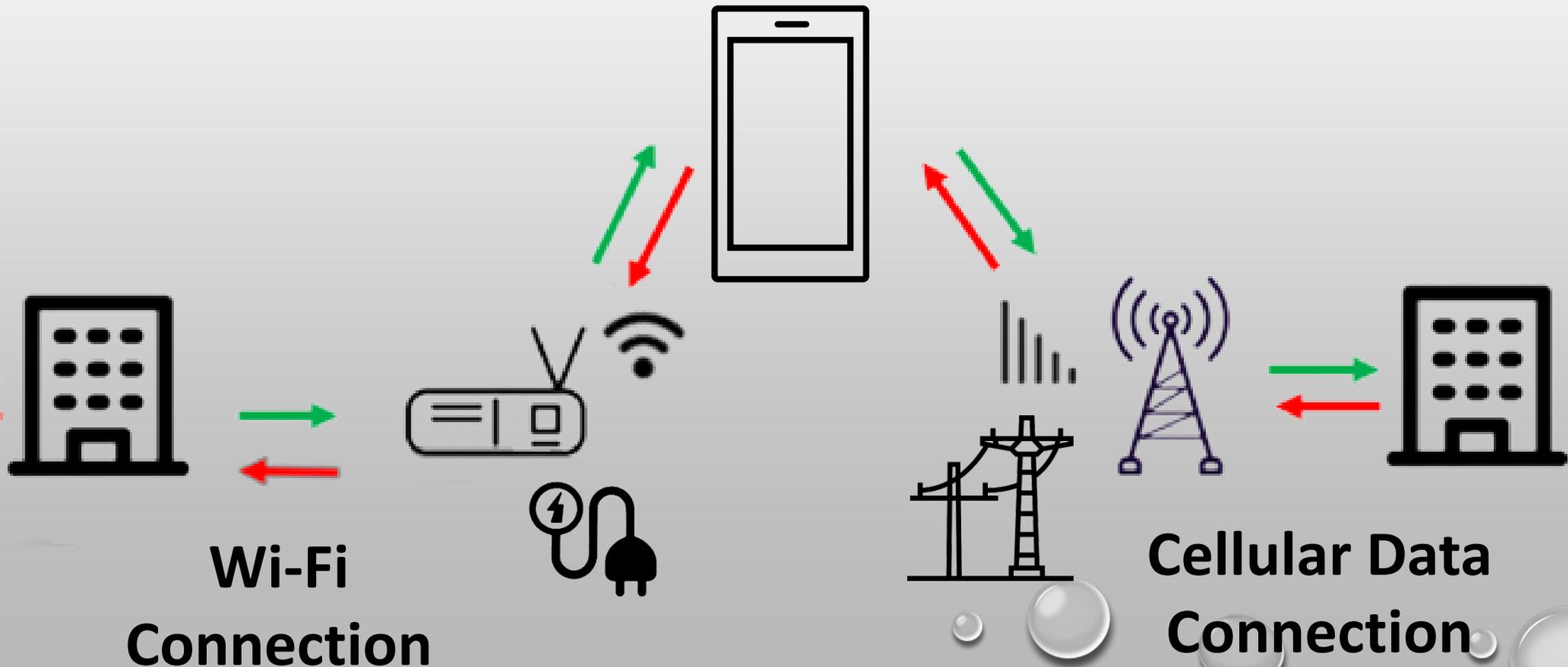
IT SEEMS WEIRD FROM A NETWORKING POINT OF VIEW, BUT SOMETIME IN THE LAST FEW YEARS THIS FLIPPED FOR ME.

CELLULAR VS. WI-FI

	Wi-Fi	Cellular
Initial Purchase Cost	\$250	\$250
Annual "Subscription" Cost	\$0	\$50
Site Requirements	Local Wireless Network	Cellular Network Available
Customer Technical Aptitude (Connectivity Maintenance)	Customer has other Wi-Fi devices in their home and manages their network. (requires maintenance)	Cellular Network is available (little to connectivity maintenance required)
Power Outage	Generally, when power or internet are absent, the remote monitoring will stop. Some units function as local alarms provided the alarm has back-up power. Unit can notify that "power or internet" have been lost.	Remote monitoring continues provided the equipment has back-up power. System can notify users that specifically that power is lost.

DATA PHONES AND THE INTERNET (2 CONNECTIONS)

Testing for internet presence with a data phone requires turning off the signal that is not being tested.



TYPES OF POWER OUTAGE

GRID OUTAGE

- Wi-Fi will cease even with back-up battery
- Cellular will continue to operate



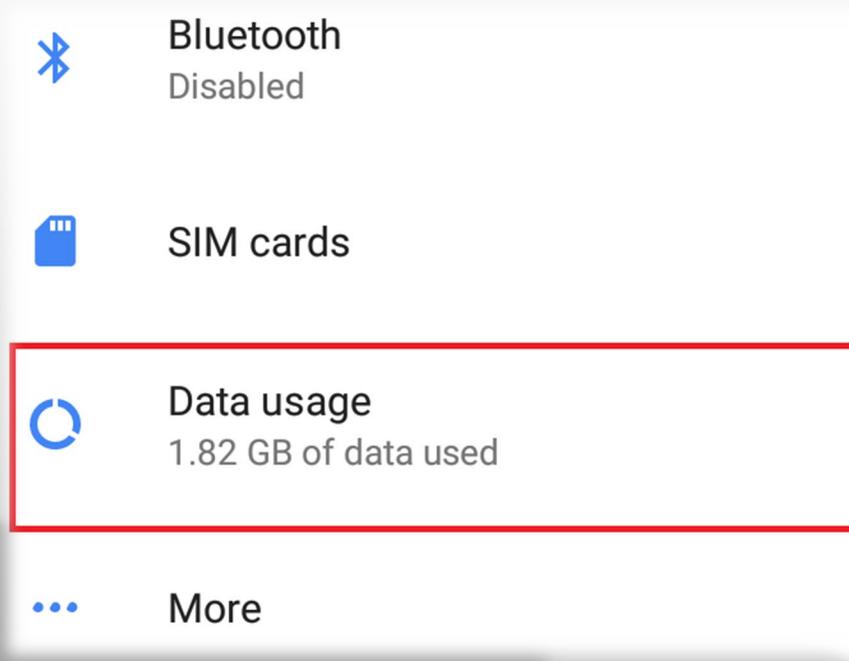
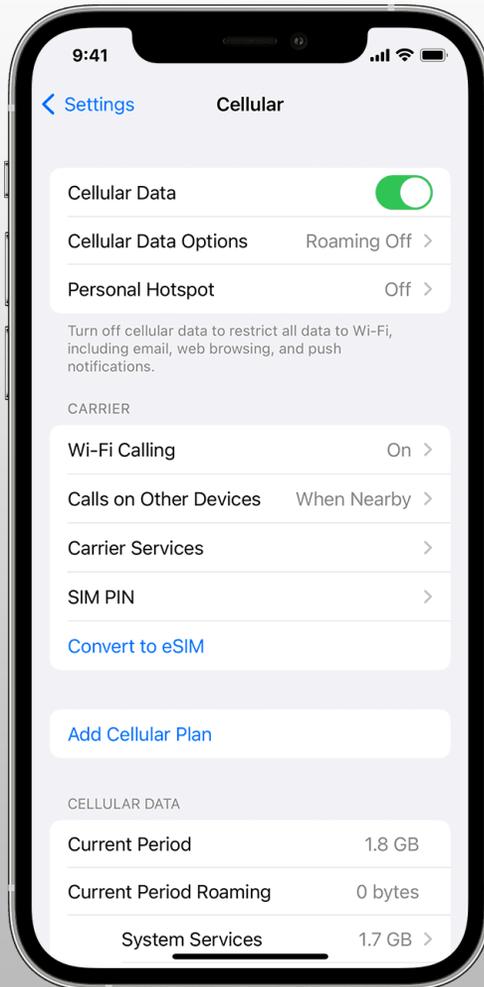
CIRCUIT OUTAGE

- Wi-Fi will continue if on a separate circuit
- Cellular will continue to operate





TESTING WI-FI SIGNAL STRENGTH (TURN OFF CELLULAR CONNECTION)



**SEARCH SPEED TEST
OR
SPEEDOF.ME**

INDOOR VS. OUTDOOR ALARMS

INDOOR RATED (IP20)

- More prevalent (larger offering)
- Must be mounted in a plastic enclosure or sheltered area



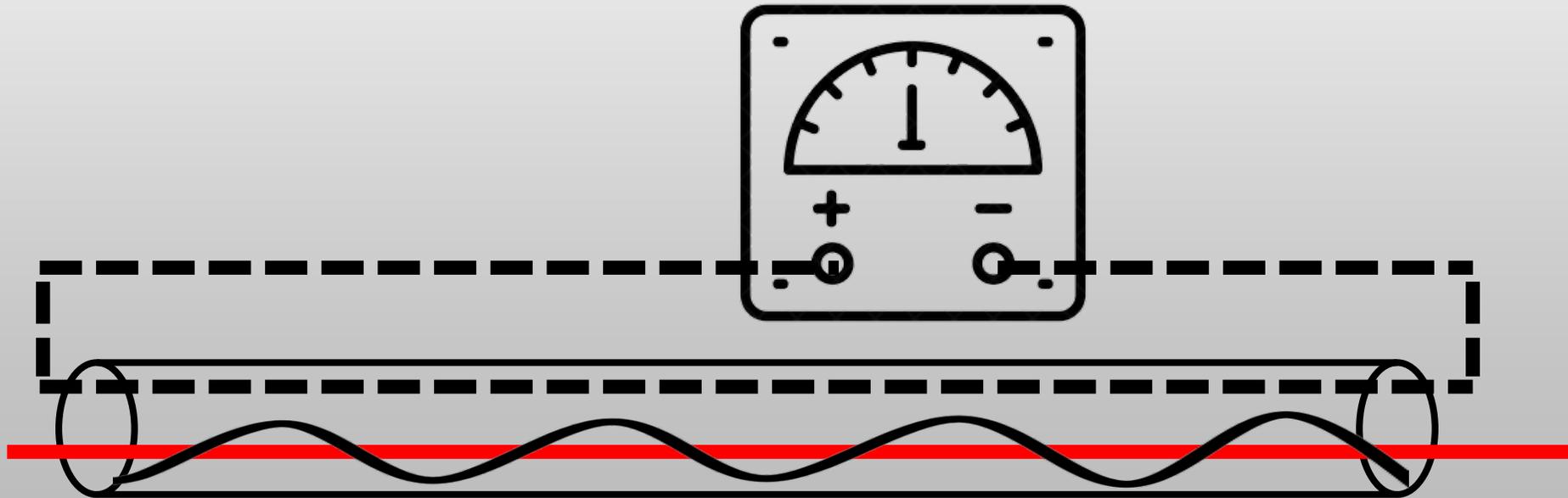
OUTDOOR RATED (IP55+)

- Less prevalent
- Easier, faster installation
- Few if any cellular options currently



AC AND DC FLOAT SWITCHES

- Wireless alarms can and often do have DC (rather than AC signals) running to the float switch
- If AC and DC cables are mixed over distances the AC wire can impart voltage onto the DC wire. The impact can be false alarms.
- Because this is low voltage DC (i.e., less than 70VDC) a new conduit need only be buried 6"†



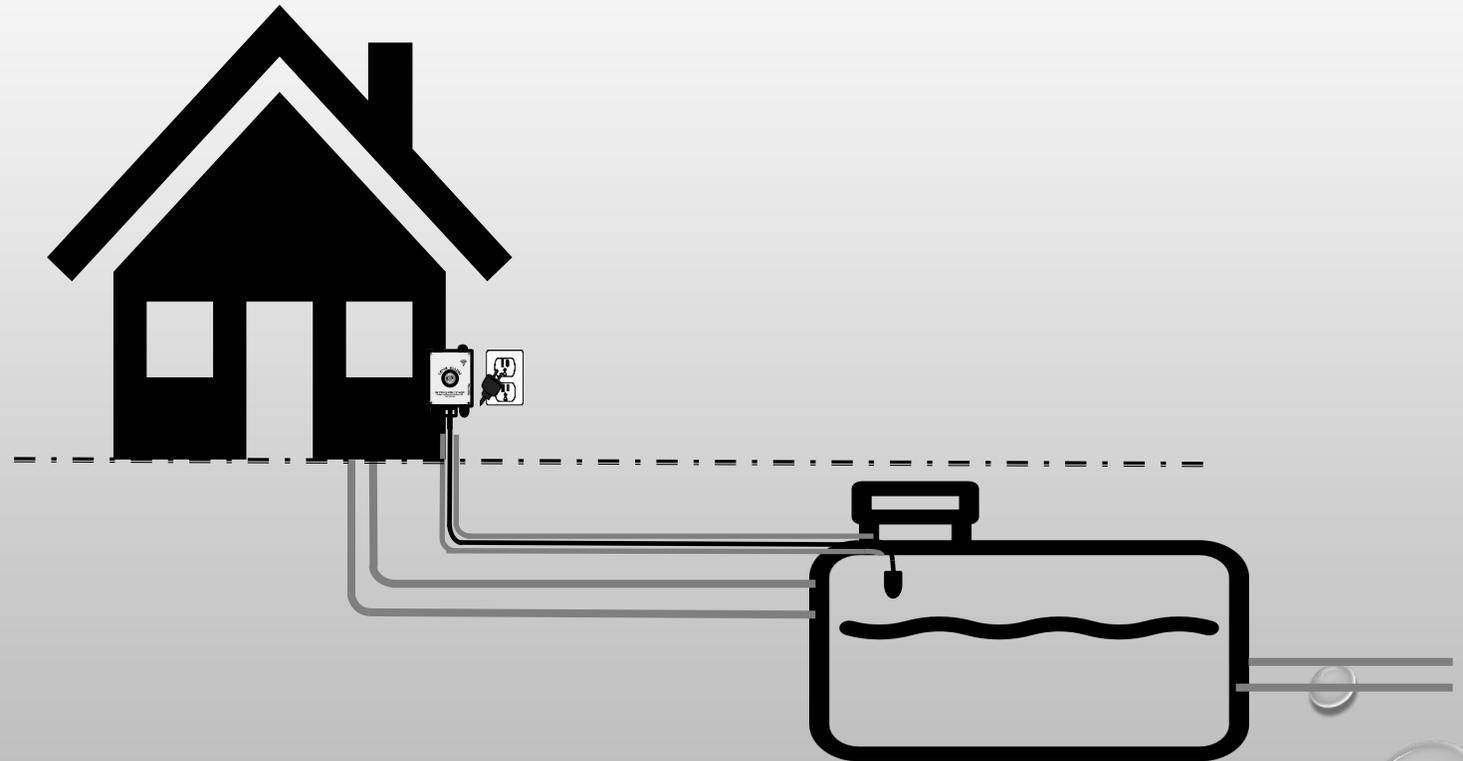
† Reference the paper for applicable code section

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IV. HOW TO SELECT, SCOPE, QUOTE, MAKE MONEY

INSTALLATION BASICS

- 1. Power Source
- 2. Alarm
- 3. Float Switch
- 4. Conduit



POTENTIAL PLAN STRUCTURES

Plan	Plan Description	Hardware Owner	Wi-Fi or Cellular
1. Hardware Only	Customer wants a wireless system, purchased through a septic installer and drop shipped.	Customer	Either
2. Hardware & Installation	Customer purchases the hardware and pays for the physical installation. This completes scope, and customer is responsible for connecting it to wireless service and calls the manufacturer if they have additional questions.	Customer	Wi-Fi
3. Hardware Installation & Set-Up	Plan 2 + connection the unit to the customers Wi-Fi Network or cellular network for a fee. Customer provides network name and password.	??	Avoid for Wi-Fi
4. Complete "Turn-Key"	Installer does everything including alarm maintenance. Perhaps customer does not even receive notifications.	Installer	Cellular

* Table 1 in Paper

EXAMPLE FINANCIAL MODEL



**Market Price
\$250 Each**

**Installer Cost
30% Off, \$175**



Sell Price \$60/Hour

Cost \$40 / Hour

Numbers used in the presentation are for example purposes only.

FINANCIAL MODEL (HARDWARE & INSTALLATION)



Sale Price:

Alarm = \$250

Labor = \$180

Parts = \$35

Total: = \$465

Cost:

Alarm = \$175

Labor = \$80

Parts = \$15

Total: = \$270

$$\text{Margin} = \frac{(\$465 - \$270)}{\$465} = \frac{\$195}{\$465} = 42\%$$

Numbers used in the presentation are for example purposes only.

FINANCIAL MODEL (HARDWARE & INSTALLATION)



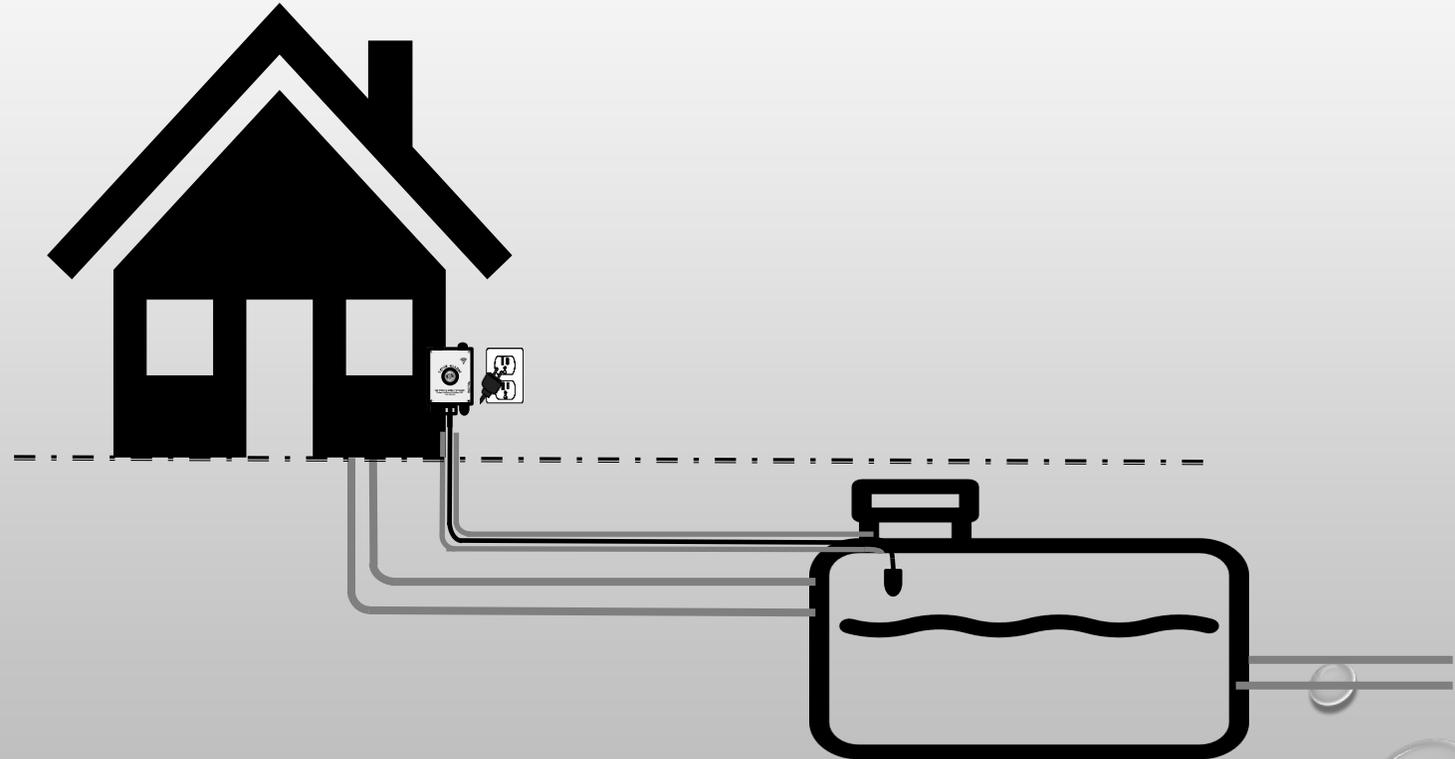
$$\frac{3 \text{ alarms}}{\text{month}} \times \frac{\$195}{\text{alarm}} \times \frac{12 \text{ months}}{\text{year}} = \frac{\$7,020}{\text{year}}$$

- **Bundle alarm and installation**
- **Standardize on product offering**
- **Purchase in “bulk” (3-10 systems), negotiate a discount**
- **Manage scope to skills**

Numbers used in the presentation are for example purposes only.

INSTALLATION BASICS

1. Power Source
2. Float Switch
3. Conduit
4. Tank Type



SCOPE DEFINITION IS CRITICAL

Element	Included	Not Included
Where is the Power?	Power Provided by Customer	Outlets, Electrical Work, Code Compliance
Limit Distance Between Power and Alarm	Static Number (i.e., 25 feet), Digging, PVC conduit, Float Switch Installation	Utility Survey, Sprinkler Repair, Tree Roots etc.
Connectivity, Maintenance & Product Registration	By Customer	Connecting to Wi-Fi, Passwords, Online Registration, etc.
Is there Wi-Fi at the Site?	By Customer	Wi-Fi Extenders, work on customers network.

See the paper for more detailed scope of work text.

HARDWARE SELECTION



ALARM



NETWORK



INSTALLATION



COMMERCIAL



CONSIDERATIONS FOR HEAD-UNIT



ALARM



- **Indoor | Outdoor (Temperature & IP Ratings)**
- **Model Numbers**
- **Standard Float Switch Cable Length**
- **AC Power Cable Length / Method**
- **Float Switch Signal (AC or DC)**
- **Float switch Type**
- **Back-Up Power (None, Alkaline, Rechargeable)**

NETWORK CONSIDERATIONS



- **Home Internet**
 - **Has Ethernet Port or Wi-Fi Only**
 - **Recommended Connection (2.4G, 5G)**
 - **Tamper Security**
- **Cellular**
 - **Carrier(s) – AT&T, Verizon, etc.**
 - **Fee for Cellular Service**
- **Notifications**
 - **Types (E-mail, Text)**
 - **Quantity of Notification Contacts (2, 5, Unlimited)**
 - **Notification Types (offline, power loss, level)**
 - **Recovery Notifications**

INSTALLATION CONSIDERATIONS



INSTALLATION



- **Separation of Float from Unit (conduit passage)**
- **Maximum Distance (if applicable)**
- **Mounting Methods**
- **Parts that are Included (and needed)**

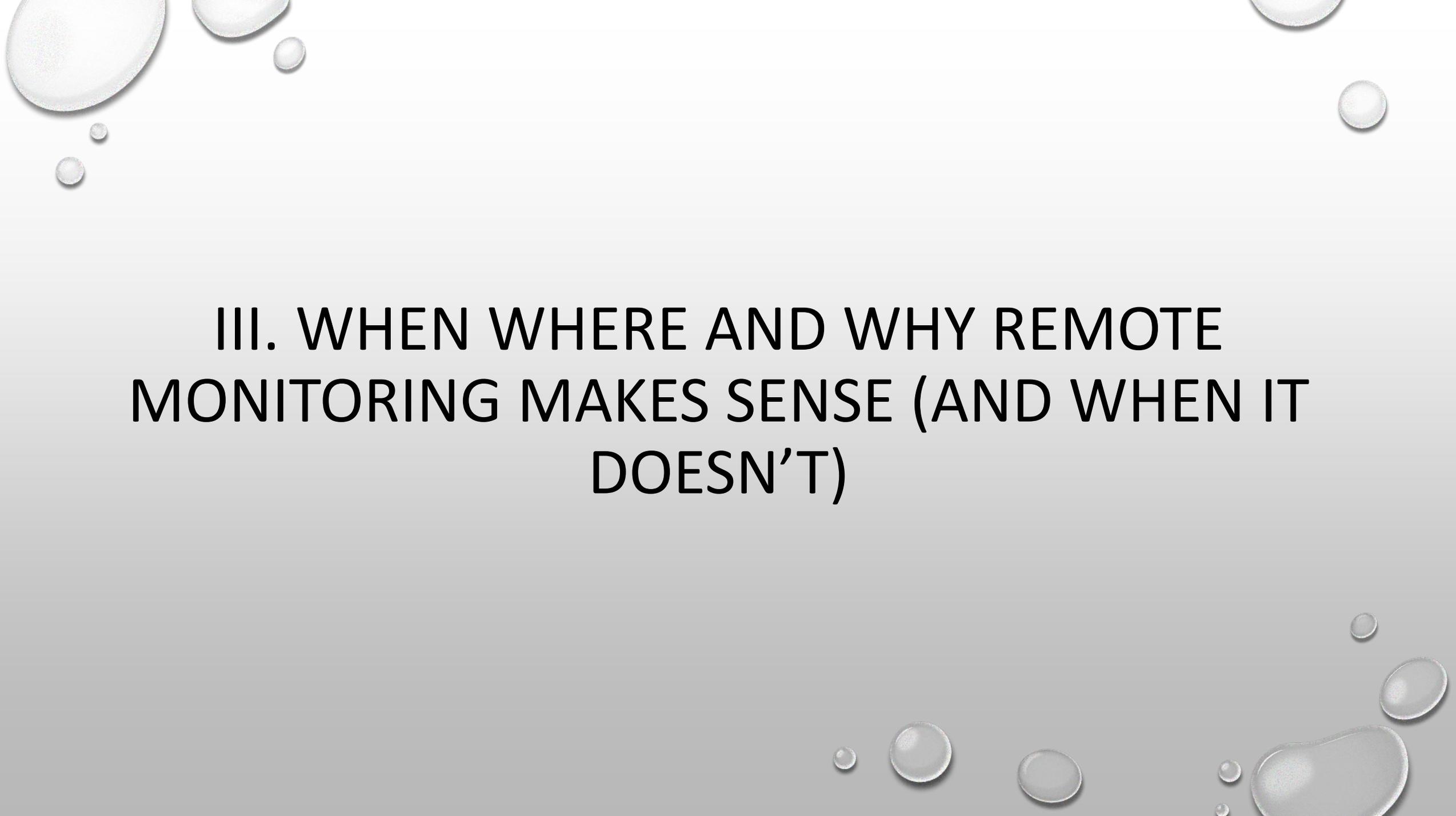
COMMERCIAL CONSIDERATIONS



COMMERCIAL



- **Technical Support (Hours, Location, etc.)**
- **Where to Buy / Discounts**
- **Delivery**
- **Warranty**

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III. WHEN WHERE AND WHY REMOTE MONITORING MAKES SENSE (AND WHEN IT DOESN'T)

CUSTOMER MATCHING

FAILURE
IMPACTS

- Conditional Monitoring Benefit
- Power Loss Affect

CUSTOMER &
PROPERTY

-
- Travel & Lifestyle
 - Time Value
 - Property Location
 - Peace of Mind

CUSTOMER
SAAVY

-
- Septic/Grinder Knowledge
 - Technical / Wireless Savvy

INSTALLER
VALUE

-
- Equipment Selection
 - Wastewater Knowledge
 - Installation Experience
-

CUSTOMER

- Tech Savvy
- Travel / Lifestyle
- Failure Impacts
- Septic Knowledge

INSTALLER

- Knowledge
- Installation Experience
- Equipment Selection
- Availability



Characteristics of Successful Deployments

- **Reduction in Emergency Calls (Better Business & Route Planning)**
- **Need or Desire for Autonomous Operation**
- **Matched Skills**
- **Key to Customer Retention / Recurring Service**

Characteristics of Unsuccessful Deployments

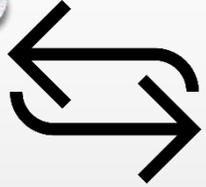
- **Unnecessary / Unwanted**
- **On-Site Supervision**
- **Unmatched Skills**

INSTALLATION: SUCCESS & PITFALLS



Multiple Trips

- Need Parts

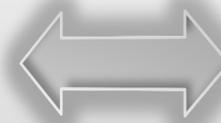


A Basic List of Tools and Parts is in the paper (Appendix IV)

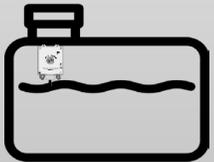


Untested

- Test Alarm Locally Before Departing
- Customer Not Home to Approve



Have the Alarm Spot Marked Within 6' of Outlet or Power Basement Access in some cases

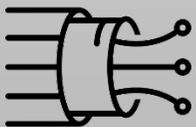


Alarm Location & Float

- Mounted in the Tank (no signal)
- Alarm Not Located Per Customer Request



Never Mount Alarm in the Tank
No shared float switch



Conduit and Wiring

- DC and AC together
- Float Switch Cord Length



Low Voltage DC conduit only needs to be buried 6" deep per NEC.
DC & AC should be separated if run is greater than 5'

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VI. ADMINISTERING INSTALLATIONS INTO YOUR COMPANY

ADMINISTRATION

Select Equipment

Standardize

Use it Personally (or within your team)

Familiarize

Installation Knowledge

Create An Administrative Offering

Product Knowledge

Standard Accounting Text (Scope Limits)

Select A Resource

Admin Survey Paper (Appendix II)

Create an Internal Expert

Advertise It

Close Feedback Loop (Installation Process, Checklist)

Select Clients (Savings)

Mailer Insert

E-Mail Campaign

Time of Year

EXAMPLE ITEM TEXT

Item	Description	Qty	Rate	Amt
ALARM-INSTALLATION	<p>Provide and Install Wireless Alarm, Model XYZ, made by Company PDQ. Scope includes mounting of Alarm, Installation of High-Level Float Switch into Grinder Tank. Power to the device will be provided by customer within 4' of Alarm. Cabling and conduit will be provided up to X feet.</p> <p>This scope is installation only. Responsibility for device activation, network connectivity, and maintaining the connection is done by the customer with assistance from Device Manufacturer.</p>	1	\$450.00	\$450.00
			SUBTOTAL	\$450.00
			SHIPPING	\$0.00
			DISCOUNT	\$0.00

SUMMARY

- 1. Autonomous Conditional Monitoring is the Key Benefit to Both Parties**
- 2. There are Three Parties Involved: Installers, Customer, Manufacturer**
- 3. The Customer, the Alarm, and Installer Skills Need to “Fit”**
- 4. Customers Consider their Septic Company “The Expert”**
- 5. Clear Scope Definition & Expectation Management are Key**
- 6. Streamline the Process with Basic Administration**
- 7. The First One is the Hardest. Efficiency Comes with Experience.**

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QUESTIONS?

THANK YOU



Sump 
Alarm